

specification, including the drawings and claims of the original patent, are enclosed. Pursuant to 35 U.S.C. 251, this reissue application is being filed within the two year deadline for claims that enlarge the scope of the original patent.

Also submitted herewith is an amendment directing the entry of the changes and new claims described below.

Please amend the above-entitled application as follows:

IN THE CLAIMS:

a. Please amend the following claim:

10. (Amended) The plant of Claim [9] 2, wherein said calcination reactor has a substantially cylindrical bottom portion including a fuel burner and said fluidized feed stream is introduced tangentially in the bottom portion such as to produce a cyclonic flow through the reactor.

b. Please enter the following new claims:

20. A calcination plant for a particulate feed material
comprising:
a calcination reactor; and

a2 means for effecting transport of the particulate feed material through said calcination reactor along a substantially cyclonic flow path.

21. The plant of claim 20, wherein said effecting means comprises means for introducing the particulate feed material into said calcination reactor substantially tangentially of said calcination reactor.

22. The plant of claim 20, further comprising means for creating a heat source within said cyclonic flow path.

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FOOTNOTES
23. The plant of claim 22, wherein said calcination reactor is substantially vertical and has a bottom portion, said effecting means comprising means for introducing the particulate material into said calcination reactor substantially tangentially of said bottom portion, and said cyclonic flow path extending upwards from said bottom portion, said creating means being mounted in said bottom portion.

24. The plant of claim 22, wherein said creating means comprises a burner.

25. The plant of claim 20, further comprising a storage silo for the particulate feed material, means for fluidizing the particulate feed material prior to storage and for conveying a

28. The method of claim 27, further comprising the step of introducing said particulate feed material into said calcination zone substantially tangentially of said calcination zone.

29. The method of claim 27, further comprising the step of creating a heat source within said cyclonic flow path.

30. The method of claim 29, wherein the creating step comprises generating a flame within said cyclonic flow path.

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31. The method of claim 27, further comprising the steps of storing said particulate feed material in a storage space prior to the transporting step, fluidizing said particulate feed material with conveying gas prior to the storing step, heating said conveying gas prior to the fluidizing step, entraining said particulate feed material with transporting gas prior to the transporting step, heating said transporting gas prior to the entraining step, and separating said particulate feed material and said transporting gas in a solid-gas separation zone following the transporting step to produce a solid calcined product and a gaseous exhaust, said calcination zone and said solid-gas separation zone being located in said storage space, and the storing step including conveying the fluidized particulate feed material into said storage space and at least partially immersing said calcination zone and said solid-gas separation zone in said particulate feed material, the steps of

heating said conveying gas and heating said transporting gas being performed in said storage space using gaseous exhaust from said solid-gas separation zone.

32. The method of claim 31, further comprising the step of injecting a fluidizing gas into said storage space.

33. A method of operating a calcination plant for particulate feed material comprising the steps of:

storing said particulate feed material in a storage space;

removing said particulate feed material from said storage space;

entraining said particulate feed material with transporting gas following the removing step;

transporting the entrained particulate feed material through a calcination zone; and

separating said particulate feed material and said transporting gas in a solid-gas separation zone following the transporting step to produce a solid calcined product and a gaseous exhaust, said calcination zone and said solid-gas separation zone being located in said storage space, and the storing step including at least partially immersing said calcination zone and said solid-gas separation zone in said particulate feed material.

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34. The method of claim 33, further comprising the steps of fluidizing said particulate feed material with conveying gas prior to the storing step, heating said conveying gas with gaseous exhaust from said solid-gas separation zone prior to the fluidizing step, and heating said transporting gas with gaseous exhaust from said solid-gas separation zone prior to the entraining step, the storing step including conveying the fluidized particulate material into said storage space, and the steps of heating said conveying gas and heating said transporting gas being performed in said storage space.

35. The method of claim 34, further comprising the step of injecting a fluidizing gas into said storage space.

36. A method of operating a calcination plant for particulate feed material comprising the steps of:

admitting said particulate feed material into a calcination zone;

transporting said particulate feed material through said calcination zone; and

adjusting the temperature in said calcination zone, the adjusting step including varying the rate of admission of said particulate feed material into said calcination zone.

37. The method of claim 36, wherein the transporting step comprises conveying said particulate feed material through said calcination zone along a substantially cyclonic flow path.

38. The method of claim 37, wherein the admitting step comprises introducing said particulate feed material into said calcination zone substantially tangentially of said calcination zone.

39. The method of claim 37, further comprising the step of creating a heat source within said cyclonic flow path.

40. The method of claim 39, wherein the creating step comprises generating a flame within said cyclonic flow path.

41. The method of claim 36, further comprising the steps of storing said particulate feed material in a storage space prior to the admitting step, fluidizing said particulate feed material with conveying gas prior to the storing step, heating said conveying gas zone prior to the fluidizing step, entraining said particulate feed material with transporting gas prior to the transporting step, heating said transporting gas prior to the entraining step, and separating said particulate feed material and said transporting gas in a solid-gas separation zone following the transporting step to produce a solid calcined product and a gaseous exhaust, said calcination zone and said solid-gas separation zone being located in said storage space,